

نام و نام خانوادگی آریز پاسخنامه تشریحی تکلیف شماره ۱۹ کلاس A

$$w_1^2 - a w_1 + 1 = 0 \quad p = \frac{r}{w}, \quad S = \frac{a}{w} \quad \text{و} \quad r, w \rightarrow \text{ریشه ها}$$

$$r \times w = \frac{r}{p} \Rightarrow r w = 1 \Rightarrow r = \frac{1}{w} \rightarrow r = \pm \frac{1}{w} \quad ; \quad \frac{a}{w} = 1r \Rightarrow a = 1r$$

$$\Rightarrow a = 1 \text{ و } a = -1 \Rightarrow \boxed{1 - (-1) = 2}$$

$$w_1^2 w_2^2 - (m+1) w_1 w_2 + 1 = 0 \quad \alpha + \beta = \frac{m+1}{w_1 w_2}, \quad \alpha \beta = \frac{1}{w_1 w_2} \quad \sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} = \omega$$

$$\Rightarrow \frac{1}{\alpha} + \frac{1}{\beta} + 2\sqrt{\frac{1}{\alpha\beta}} = 2\omega \Rightarrow \frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta} = m+1, \quad \sqrt{\frac{1}{\alpha\beta}} = \sqrt{w_1 w_2} = 1 \Rightarrow m+1 + 2(1) = 2\omega$$

$$\Rightarrow m+2 = 2\omega \rightarrow m = -2 \Rightarrow -w_1^2 + 3w_1 + 1 = 0 \Rightarrow \boxed{\frac{c}{a} = \frac{3}{-1} = -3}$$

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$$f w^2 + k w^2 - 9w - 1 = 0 \quad \alpha + \beta = 1, \quad \alpha\beta = -1 \Rightarrow w^2 - w - 1 = (w-1)(w+1) = 0$$

$$\Rightarrow \begin{cases} \alpha = 1 \rightarrow 1^2 + k + 1 - 1 = 0 \Rightarrow k = -1 \rightarrow k = -1 \checkmark \\ \beta = -1 \rightarrow -1^2 + k + 9 - 1 = 0 \rightarrow k = -7 \checkmark \end{cases}$$

$$w_1^2 + 9w_1 + a = 0, \quad w_2^2 + 12w_2 = 12\sqrt{2} + 12\omega, \quad \alpha < \beta < 0, \quad \alpha + \beta = -9, \quad \alpha\beta = a$$

$$\rightarrow \alpha = \frac{-9-D}{2}, \quad \beta = \frac{-9+D}{2} \rightarrow D = \beta - \alpha = \sqrt{(\alpha + \beta)^2 - 4\alpha\beta} = \sqrt{81 - 4a}$$

$$\alpha^2 = \frac{w_1^2 + 12D + D^2}{4}, \quad \beta^2 = \frac{w_2^2 + 12D + D^2}{4} \Rightarrow w_2^2 + 12D = \frac{1}{4} [(w_1^2 + 12D + D^2) + (w_2^2 + 12D + D^2)]$$

$$= \frac{1}{4} (120 + 12D + 12D) = 12\sqrt{2} + 12\omega \rightarrow 12D + 12D = 120 - 12\sqrt{2} \rightarrow D = 10 - \sqrt{2} \rightarrow 12D = 120 - 12\sqrt{2} \rightarrow 120 - 12\sqrt{2} = 120 - 12\sqrt{2} \rightarrow a = 120 - 12\sqrt{2}$$

$$w^2 - Vw - \omega = 0 \rightarrow t^2 - Vt - \omega = 0 \Rightarrow t_1 = \frac{V + \sqrt{V^2 + 4\omega}}{2}, \quad t_2 = \frac{V - \sqrt{V^2 + 4\omega}}{2}$$

$$t = w \Rightarrow w = \pm \sqrt{\frac{V \pm \sqrt{V^2 + 4\omega}}{2}} \Rightarrow S = 0, \quad p = -\omega$$

$$\Rightarrow 1p^2 - 3sp + 2s = \omega_0 - 3(0)(-\omega) + 1(0) = \boxed{\omega_0}$$

$\alpha = V$

$$x^n - ax + b = 0, \quad x^n + ax - 9 = 0 \rightarrow S = -\frac{a}{x^n} = -\frac{1}{x}, \quad (x + 0, \omega) + (B + 0, \omega) = \frac{1}{x}$$

$$\frac{a}{x} = \frac{1}{x} \Rightarrow a = 1, \quad (x + 0, \omega)(B + 0, \omega) = xB + 0, \omega(x+B) + 0, \omega$$

$$\rightarrow -\frac{x}{a} + 0, \omega(-\frac{1}{x}) + 0, \omega \xrightarrow{a=1} -x - \frac{1}{x} + \frac{1}{x} = -x \Rightarrow \frac{b}{x} = -x \rightarrow b = -x$$

$$a=1, b=-x \Rightarrow \left[\frac{a}{x} \right] = \left[\frac{-x}{x} \right] = [-1, \omega] = \boxed{-1}$$

$$x \neq B, \quad x^n - ax - b = 0, \quad x^n + bx - 1 = 0$$

$$S = x + B = 1 \Rightarrow x = 1 - B \Rightarrow x^n + b(1 - B) - 1 = 0 \Rightarrow x^n + b - bB - 1 = 0 \Rightarrow x^n - bB - 1 = 0$$

$$\rightarrow x^n - bB - 1 = 0 \Rightarrow B = \frac{x^n - 1}{b} = \frac{x^n - 1}{b}$$

$$\rightarrow x = 1 - B = \frac{1 - \frac{x^n - 1}{b}}{1} \Rightarrow \boxed{x - B = \frac{1 - \frac{x^n - 1}{b}}{1}}$$

$$x^n - (a+1)x + a = 0, \quad x^n - (x^m + 1)x + b = 0$$

$$1 \cdot k + b \cdot k - 1 = a = (k-1)(k+1) \rightarrow k^2 - 1 = a, \quad x^m + 1 = x^m + x^m + 1 \rightarrow x^m + 1 = x^m + 1$$

$$a = k^2 - 1 \rightarrow x^m + 1 = x^m(k^2 - 1) + 1 = 1 \cdot k^2 - 1 \rightarrow x^m = k^2 - 1 \rightarrow m = k^2 - 1$$

$$b = (x^m)(x^m + 1) = x^m(x^m + 1) \rightarrow b = x^m(x^m + 1) = x^m(x^m + 1)$$

$$b - a = x^m(x^m + 1) - (k^2 - 1) \xrightarrow{k=1} a=1, b=1 \Rightarrow \boxed{b-a=1}$$

$$x^n + x - 1 = x - m^n = 0, \quad x^n + B^n = (x+B)^n - x^n \rightarrow x^n + B^n = x^n + B^n \rightarrow \boxed{x+B=1}$$

$$S = -1, P = -(1 + m^n)$$

$$y \rightarrow (-1, 1) \Rightarrow y = a(n+1)^x + 1 \xrightarrow{y=0} 0 = a(n+1)^x + 1 \rightarrow (n+1)^x = -\frac{1}{a}$$

$$\Rightarrow x = \sqrt[n]{-\frac{1}{a}} - 1, B = -\sqrt[n]{-\frac{1}{a}} - 1, S = x + B = -2, P = xB = 1 + \frac{1}{a}$$

$$x^n + B^n = (x+B)^n - x^n \Rightarrow \omega = (-2)(1 + \frac{1}{a}) \rightarrow a = -\frac{1}{\omega} \Rightarrow y = -\frac{1}{\omega}(n+1)^x + 1$$

$$\xrightarrow{n=0} \boxed{(0, \frac{1}{\omega})}$$